SEQUENCE LISTING

<110> Pangalos, Menelas
Neefs, Jean-Marc
Peeters, Danielle

<120> Cloning and Characterisation of Novel Mammalian Peptidases

<130> J0205/7000 (JRV)

<140> 09/743,647
<141> 2001-01-12

<150> GB 9815284.6
<151> 1999-07-14

<160> 59

<170> PatentIn version 3.0

<210> 1
<211> 35
<212> DNA
<213> Artificial Sequence

<400> 1
cccggatccg agatgtggat tctccttcac gaaac 35

<210> 2
<211> 36
<212> DNA

<213> Artificial Sequence

<400> 2
ccccctcgagt taggctactt cactcaaagt ctctgc 36

<210> 3

<211> 40

<212> DNA

<213> Homo sapiens

<400> 3
ccctcagagt ggagcagctg ttgttcatga aattgtgagg 40

<210> 4

<211> 40

<212> DNA

<213> Homo sapiens

<400> 4
cctcacaatt tcatgaacaa cagctgctcc actctgaggg 40

<210> 5

<211> 24

<212> DNA

<213> Homo sapiens

<400> 5
gttcttcaac aagctgcagg agcg 24

<210> 6

<211> 32

<212> DNA

<213> Artificial Sequence

<400> 6
ccccctcgagc cggagtaaag ggagggctga ag 32

<210> 7

<211> 24

<212> DNA

<213> Homo sapiens

<400> 7
ggcgacctga gcatctacga caac 24

<210> 8

<211> 31

<212> DNA

<213> Artificial Sequence

<400> 8
ccccctcgagt cccctcagag gtcagccaca g 31

<210> 9

<211> 22

<212> DNA

<213> Homo sapiens

<400> 9
gccagcaccc agagaaccca ag 22

<210> 10

<211> 22

<212> DNA

<213> Homo sapiens

<400> 10
gctgcggttg aagtaccgga tc 22

<400> 10
gctgcggttg aagtaccgga tc 22

<210> 11

<211> 27

<212> DNA

<213> Artificial Sequence

<400> 11
ccatcctaat acgactcact atagggc 27

<210> 12

<211> 23

<212> DNA

<213> Artificial Sequence

<400> 12
actcactata gggctcgagc ggc 23

<210> 13

<211> 18

<212> DNA

<213> Artificial Sequence

<400> 13
tgtaaaacga cggccagt 18

<210> 14

<211> 18

<212> DNA

<213> Artificial Sequence

<400> 14

caggaaacag ctatgacc 18

<210> 15

<211> 25

<212> DNA

<213> Homo sapiens

<400> 15
ctgcagcttg ttgaactctt ctgtg 25

<210> 16

<211> 24

<212> DNA

<213> Homo sapiens

<400> 16
caaacacgat tgatctgcga ggac 24

<210> 17

<211> 29

<212> DNA

<213> Artificial Sequence

<400> 17
cggatatccg caggatgcag tggacgaag 29

<210> 18

<211> 26

<212> DNA

<213> Artificial Sequence

<400> 18
caaacacaat tgatctgcga ggacgc 26

<210> 19

<211> 26

<212> DNA

<213> Artificial Sequence

<400> 19
gcgtcctcgc agatcaattg tgtttg 26

<210> 20

<211> 25

<212> DNA

<213> Homo sapiens

<400> 20
ctttgatgat agcgcacaga agtgg 25

<210> 21

<211> 21

<212> DNA

<213> Homo sapiens

<400> 21
ggaaagatgc cagcgcagga c 21

<210> 22

<211> 26

<212> DNA

<213> Homo sapiens

<400> 22
cgtcagagcc gccctatcag attatc 26

<210> 23

<211> 26

<212> DNA

<213> Homo sapiens

<400> 23
gaggagtttt ccaaagttgc agaccc 26

<210> 24

<211> 23

<212> DNA

<213> Homo sapiens

<400> 24
gggaaacaaa caaattcagc ggc 23

<210> 25

<211> 28

<212> DNA

<213> Homo sapiens

<400> 25
gtcaaagtcc tggagtctct cactgaac 28

<210> 26

<211> 23

<212> DNA

<213> Homo sapiens

<400> 26
gaccggagca agacttcagc cag 23

<210> 27

<211> 23

<212> DNA

<213> Homo sapiens

<400> 27
gtgttgatat gcgttggccc aag 23

<210> 28

<211> 31

<212> DNA

<213> Homo sapiens

<400> 28
cactaagaat aagaaaacag ataagtacag c 31

<210> 29

<211> 33

<212> DNA

<213> Homo sapiens

<400> 29
gatcaacttg tataagtcgt ttatgaaaat ctg 33

<210> 30

<211> 25

<212> DNA

<213> Homo sapiens

<400> 30
gcagaagaac aaggtggagt tggtg 25

<210> 31

<211> 24

<212> DNA

<213> Homo sapiens

<400> 31
gctttggatc catgacagtc atgg 24

<210> 32

<211> 26

<212> DNA

<213> Homo sapiens

<400> 32
tgaaggtcgg agtcaacgga tttggt 26

<210> 33

<211> 24

<212> DNA

<213> Homo sapiens

<400> 33
catgtgggcc atgaggtcca ccac 24

<210> 34

<211> 2320

<212> DNA

<213> Homo sapiens

<220>

<221> Unsure

<222> (315)..(315)

<223> n = a, c, g, or u/t

<400> 34
gccaagagtc cgcaggatgc agtggacgaa ggtgttgggg ctggggctgg gggctgctgc 60

cctcttgggg ctggggatca tcctcggcca ctttgccatc cccaaaaaag ccaactcact 120

ggcccccag gacctggacc tggagatcct ggagaccgtc atggggcagc tggatgccca 180

caggatccgg gagaacctca gagaactctc cagggagcca cacctggcct ccagccctcg 240

ggatgaggac ctggtgcagc tgctgctgca gcgctggaag gacccagagt caggcctgga 300

ctcggccgag gcctncacgt acgaagtgct gctgtccttc cctagccagg agcagcccaa 360

cgtcgtggac atcgtgggcc ccactggggg catcatccac tcctgccacc ggactgagga 420

gaacgtgacc ggggagcaag gggggccaga tgtggtacaa ccctatgctg cctatgctcc 480

ttctggaacc ccacagggcc tcctcgtcta tgccaaccgg ggcgcggaag aagactttaa 540

ggagctacag actcagggca tcaaacttga aggcaccatt gccctgactc gatatggggg 600

tgtagggcgt ggggccaagg ctgtgaacgc tgccaagcac ggggtagctg gggtgctggt 660

gtacacagac cctgccgaca tcaacgatgg gctgagctca cccgacgaaa cctttcccaa 720

ctcctggtac ctgccccct caggagtgga gcgaggctcc tactacgagt attttgggga 780

ccctctgact ccctaccttc cagccgtccc ctcttccttc cgcgtggacc ttgccaatgt 840

ctccggattt cccccaattc ctacacagcc cattggcttc caggatgcaa gagacctgct 900

ctgtaacctc aacggaactt tggccccagc cacctggcag ggagcactgg gctgccacta 960

caggttgggt cccggcttcc ggcctgacgg agacttccca gcagacagcc aggtgaatgt 1020

gagcgtctac aaccgcctgg agctgaggaa ctcttccaac gtcctgggca tcatccgtgg 1080

ggctgtggag cctgatcgct acgtgctgta tgggaaccac cgagacagct gggtgcacgg 1140

ggctgtggac cccagcagtg gcaccgccgt cctcctggag ctctcccgtg tcctggggac 1200

cctgctgaag aagggcacct ggcgtcctcg cagatcaatc gtgtttgcga gctgggggc 1260

tgaggagttt gggctcattg gctccacgga attcacagaa gagttcttca acaagctgca 1320

ggagcgcacg gtggcctaca tcaacgtgga catctcggtg tttgccaacg ctacccttag 1380

ggtgcagggg acgccccctg tccagagcgt cgtcttctct gcaaccaaag agatccgctc 1440

accaggccct ggcgacctga gcatctacga caactggatc cggtacttca accgcagcag 1500

cccggtgtac ggcctggtcc ccagcttggg ttctctgggt gctggcagcg actatgcacc 1560

cttcgttcac ttcctgggca tctcctccat ggacattgcc tatacctatg accggagcaa 1620

gacttcagcc aggatctacc ccacctacca cacagccttt gacacctttg actatgtgga 1680

caagtttttg gacccgggct tcagcagcca tcaggctgtg gcccggacag cggggagtgt 1740

gattctccgg ctcagtgaca gcttcttcct gcccctcaaa gtcagtgact acagtgagac 1800

actccgcagc ttcctgcagg cagcccagca agatcttggg gccctgctgg agcagcacag 1860

catcagcctg gggcctctgg tgactgcagt ggagaagttt gaggcagaag ctgcagcctt 1920

gggccaacgc atatcaacac tgcagaaggg cagccctgac cccctgcagg tccggatgct 1980

caatgaccag ttgatgctct tggaacggac ctttctgaac cctagagcct tcccagagga 2040

acgctactac agccatgtgc tctgggcacc ttcgcacggg ctccgtagtc acattccggg 2100

gctatccaat gcctgctcca gggccaggga cacagcttct ggatctgaag cttgggctga 2160

ggtccagaga cagctcagca ttgtggtgac agccctggag ggtgcggcag ccaccctgag 2220

gcctgtggct gacctctgac cccagccctc tttcttcagc cctcccttta ctccggtgct 2280

ttatatttac aaagtgcttt gtgtttttta aaagtctttt 2320

<210> 35

<211> 740

<212> PRT

<213> Homo sapiens

<220>

<221> UNSURE

<222> (100)..(100)

<223> Xaa is unknown

<400> 35

Met Gln Trp Thr Lys Val Leu Gly Leu Gly Leu Gly Ala Ala Ala Leu
1 5 10 15

Leu Gly Leu Gly Ile Ile Leu Gly His Phe Ala Ile Pro Lys Lys Ala
20 25 30

Asn Ser Leu Ala Pro Gln Asp Leu Asp Leu Glu Ile Leu Glu Thr Val
35 40 45

Met Gly Gln Leu Asp Ala His Arg Ile Arg Glu Asn Leu Arg Glu Leu
50 55 60

Ser Arg Glu Pro His Leu Ala Ser Ser Pro Arg Asp Glu Asp Leu Val
65 70 75 80

Gln Leu Leu Leu Gln Arg Trp Lys Asp Pro Glu Ser Gly Leu Asp Ser
85 90 95

Ala Glu Ala Xaa Thr Tyr Glu Val Leu Leu Ser Phe Pro Ser Gln Glu

```
                100                 105                 110

Gln Pro Asn Val Val Asp Ile Val Gly Pro Thr Gly Gly Ile Ile His
        115                 120                 125

Ser Cys His Arg Thr Glu Glu Asn Val Thr Gly Glu Gln Gly Gly Pro
    130                 135                 140

Asp Val Val Gln Pro Tyr Ala Ala Tyr Ala Pro Ser Gly Thr Pro Gln
145                 150                 155                 160

Gly Leu Leu Val Tyr Ala Asn Arg Gly Ala Glu Glu Asp Phe Lys Glu
                165                 170                 175

Leu Gln Thr Gln Gly Ile Lys Leu Glu Gly Thr Ile Ala Leu Thr Arg
            180                 185                 190

Tyr Gly Gly Val Gly Arg Gly Ala Lys Ala Val Asn Ala Ala Lys His
        195                 200                 205

Gly Val Ala Gly Val Leu Val Tyr Thr Asp Pro Ala Asp Ile Asn Asp
    210                 215                 220

Gly Leu Ser Ser Pro Asp Glu Thr Phe Pro Asn Ser Trp Tyr Leu Pro
225                 230                 235                 240

Pro Ser Gly Val Glu Arg Gly Ser Tyr Tyr Glu Tyr Phe Gly Asp Pro
                245                 250                 255

Leu Thr Pro Tyr Leu Pro Ala Val Pro Ser Ser Phe Arg Val Asp Leu
            260                 265                 270

Ala Asn Val Ser Gly Phe Pro Pro Ile Pro Thr Gln Pro Ile Gly Phe
        275                 280                 285

Gln Asp Ala Arg Asp Leu Leu Cys Asn Leu Asn Gly Thr Leu Ala Pro
    290                 295                 300

Ala Thr Trp Gln Gly Ala Leu Gly Cys His Tyr Arg Leu Gly Pro Gly
305                 310                 315                 320

Phe Arg Pro Asp Gly Asp Phe Pro Ala Asp Ser Gln Val Asn Val Ser
                325                 330                 335

Val Tyr Asn Arg Leu Glu Leu Arg Asn Ser Ser Asn Val Leu Gly Ile
            340                 345                 350

Ile Arg Gly Ala Val Glu Pro Asp Arg Tyr Val Leu Tyr Gly Asn His
        355                 360                 365

Arg Asp Ser Trp Val His Gly Ala Val Asp Pro Ser Ser Gly Thr Ala
    370                 375                 380

Val Leu Leu Glu Leu Ser Arg Val Leu Gly Thr Leu Leu Lys Lys Gly
385                 390                 395                 400

Thr Trp Arg Pro Arg Arg Ser Ile Val Phe Ala Ser Trp Gly Ala Glu
                405                 410                 415
```

```
Glu Phe Gly Leu Ile Gly Ser Thr Glu Phe Thr Glu Glu Phe Phe Asn
            420                 425                 430

Lys Leu Gln Glu Arg Thr Val Ala Tyr Ile Asn Val Asp Ile Ser Val
        435                 440                 445

Phe Ala Asn Ala Thr Leu Arg Val Gln Gly Thr Pro Pro Val Gln Ser
    450                 455                 460

Val Val Phe Ser Ala Thr Lys Glu Ile Arg Ser Pro Gly Pro Gly Asp
465                 470                 475                 480

Leu Ser Ile Tyr Asp Asn Trp Ile Arg Tyr Phe Asn Arg Ser Ser Pro
                485                 490                 495

Val Tyr Gly Leu Val Pro Ser Leu Gly Ser Leu Gly Ala Gly Ser Asp
            500                 505                 510

Tyr Ala Pro Phe Val His Phe Leu Gly Ile Ser Ser Met Asp Ile Ala
        515                 520                 525

Tyr Thr Tyr Asp Arg Ser Lys Thr Ser Ala Arg Ile Tyr Pro Thr Tyr
    530                 535                 540

His Thr Ala Phe Asp Thr Phe Asp Tyr Val Asp Lys Phe Leu Asp Pro
545                 550                 555                 560

Gly Phe Ser Ser His Gln Ala Val Ala Arg Thr Ala Gly Ser Val Ile
                565                 570                 575

Leu Arg Leu Ser Asp Ser Phe Phe Leu Pro Leu Lys Val Ser Asp Tyr
            580                 585                 590

Ser Glu Thr Leu Arg Ser Phe Leu Gln Ala Ala Gln Gln Asp Leu Gly
        595                 600                 605

Ala Leu Leu Glu Gln His Ser Ile Ser Leu Gly Pro Leu Val Thr Ala
    610                 615                 620

Val Glu Lys Phe Glu Ala Glu Ala Ala Ala Leu Gly Gln Arg Ile Ser
625                 630                 635                 640

Thr Leu Gln Lys Gly Ser Pro Asp Pro Leu Gln Val Arg Met Leu Asn
                645                 650                 655

Asp Gln Leu Met Leu Leu Glu Arg Thr Phe Leu Asn Pro Arg Ala Phe
            660                 665                 670

Pro Glu Glu Arg Tyr Tyr Ser His Val Leu Trp Ala Pro Ser His Gly
        675                 680                 685

Leu Arg Ser His Ile Pro Gly Leu Ser Asn Ala Cys Ser Arg Ala Arg
    690                 695                 700

Asp Thr Ala Ser Gly Ser Glu Ala Trp Ala Glu Val Gln Arg Gln Leu
705                 710                 715                 720

Ser Ile Val Val Thr Ala Leu Glu Gly Ala Ala Ala Thr Leu Arg Pro
                725                 730                 735
```

Val Ala Asp Leu
740

<210> 36

<211> 745

<212> PRT

<213> Rattus rattus

<400> 36

Met His Trp Ala Lys Ile Leu Gly Val Gly Ile Gly Ala Ala Ala Leu
1 5 10 15

Leu Gly Leu Gly Ile Ile Leu Gly His Phe Ala Ile Pro Lys Ala Thr
20 25 30

Glu Pro Leu Ala Ser Ser Val Ser Asp Ser Gln Asp Leu Asp Leu Ala
35 40 45

Ile Leu Asp Ser Val Met Gly Gln Leu Asp Ala Ser Arg Ile Arg Glu
50 55 60

Asn Leu Arg Glu Leu Ser Lys Glu Pro His Val Ala Thr Ser Ala Arg
65 70 75 80

Asp Glu Ala Leu Val Gln Leu Leu Leu Gly Arg Trp Lys Asp Ser Ala
85 90 95

Ser Gly Leu Asp Thr Ala Lys Thr Tyr Glu Tyr Thr Val Leu Leu Ser
100 105 110

Phe Pro Ser Thr Glu Gln Pro Asn Ser Val Glu Val Val Gly Pro Asn
115 120 125

Gly Thr Val Phe His Ser Phe Gln Pro Phe Glu Lys Asn Leu Thr Gly
130 135 140

Glu Gln Ala Glu Pro Asn Val Leu Gln Pro Tyr Ala Ala Tyr Ala Pro
145 150 155 160

Pro Gly Thr Pro Lys Gly Pro Leu Val Tyr Ala Asn Arg Gly Ser Glu
165 170 175

Asp Asp Phe Lys Lys Leu Glu Ala Glu Gly Ile Asn Leu Lys Gly Thr
180 185 190

Ile Ala Leu Thr Arg Tyr Gly Ser Val Gly Arg Gly Ala Lys Ala Ile
195 200 205

Asn Ala Ala Arg His Gly Val Val Gly Val Leu Val Tyr Thr Asp Pro
210 215 220

Gly Asp Ile Asn Asp Gly Lys Ser Leu Pro Asn Glu Thr Phe Pro Asn

225 230 235 240

Ser Trp Gly Leu Pro Pro Ser Gly Val Glu Arg Gly Ser Tyr Tyr Glu
245 250 255

Tyr Phe Gly Asp Pro Leu Thr Pro Tyr Leu Pro Ala His Pro Val Ser
260 265 270

Phe Arg Leu Asp Pro His Asn Ile Ser Gly Phe Pro Pro Ile Pro Thr
275 280 285

Gln Pro Ile Gly Phe Glu Asp Ala Lys Asn Leu Leu Cys Asn Leu Asn
290 295 300

Gly Thr Ser Ala Pro Asp Ser Trp Gln Gly Ala Leu Gly Cys Glu Tyr
305 310 315 320

Lys Leu Gly Pro Gly Phe Glu Pro Asn Gly Asn Phe Pro Ala Gly Ser
325 330 335

Glu Val Lys Val Ser Val Tyr Asn Arg Leu Glu Leu Arg Asn Ser Ser
340 345 350

Asn Val Leu Gly Ile Ile Gln Gly Ala Val Glu Pro Asp Arg Tyr Val
355 360 365

Ile Tyr Gly Asn His Arg Asp Ser Trp Val His Gly Ala Val Asp Pro
370 375 380

Ser Ser Gly Thr Ala Val Leu Leu Glu Ile Ser Arg Val Leu Gly Thr
385 390 395 400

Leu Leu Lys Lys Gly Thr Trp Arg Pro Arg Arg Ser Ile Ile Phe Ala
405 410 415

Ser Trp Gly Ala Glu Glu Phe Gly Leu Ile Gly Ser Thr Glu Phe Thr
420 425 430

Glu Glu Phe Leu Ser Lys Leu Gln Glu Arg Thr Val Thr Tyr Ile Asn
435 440 445

Val Asp Ile Ser Val Phe Ser Asn Ala Thr Leu Arg Ala Gln Gly Thr
450 455 460

Pro Pro Val Gln Ser Val Ile Phe Ser Ala Thr Lys Glu Ile Ser Ala
465 470 475 480

Pro Gly Ser Ser Gly Leu Ser Ile Tyr Asp Asn Trp Ile Arg Tyr Thr
485 490 495

Asn Arg Ser Ser Pro Val Tyr Gly Leu Val Pro Ser Met Gly Thr Leu
500 505 510

Gly Ala Gly Ser Asp Tyr Ala Ser Phe Ile His Phe Leu Gly Ile Thr
515 520 525

Ser Met Asp Leu Ala Tyr Thr Tyr Asp Arg Ser Lys Thr Ser Ala Arg
530 535 540

Ile Tyr Pro Thr Tyr His Thr Ala Phe Asp Thr Phe Asp Tyr Val Glu
545 550 555 560

Lys Phe Leu Asp Pro Gly Phe Ser Ser His Gln Ala Val Ala Arg Thr
565 570 575

Ala Gly Ser Val Leu Leu Arg Leu Ser Asp Ser Leu Phe Leu Pro Leu
580 585 590

Asn Val Ser Asp Tyr Ser Glu Thr Leu Gln Ser Phe Leu Gln Ala Ala
595 600 605

Gln Glu Asn Leu Gly Ala Leu Leu Glu Ser His Asn Ile Ser Leu Gly
610 615 620

Pro Leu Val Thr Ala Val Glu Lys Phe Lys Ala Ala Ala Ala Ala Leu
625 630 635 640

Asn Gln His Ile Leu Thr Leu Gln Lys Ser Ser Pro Asp Pro Leu Gln
645 650 655

Val Arg Met Val Asn Asp Gln Leu Met Leu Leu Glu Arg Ala Phe Leu
660 665 670

Asn Pro Arg Ala Phe Pro Glu Glu Arg Tyr Tyr Ser His Val Leu Trp
675 680 685

Ala Pro Asn Thr Ala Ser Val Ala Thr Phe Pro Gly Leu Ala Asn Ala
690 695 700

Tyr Ala Arg Ala Gln Glu Ile Asn Ser Gly Ala Glu Ala Trp Ala Glu
705 710 715 720

Val Glu Arg Gln Leu Ser Ile Ala Val Met Ala Leu Glu Gly Ala Ala
725 730 735

Ala Thr Leu Gln Pro Val Thr Asp Leu
740 745

<210> 37

<211> 41

<212> PRT

<213> Homo sapiens

<400> 37

Gly Leu Leu Val Tyr Ala Asn Arg Gly Ala Glu Glu Asp Phe Lys Glu
1 5 10 15

Leu Gln Thr Gln Gly Ile Lys Leu Glu Gly Thr Ile Ala Leu Thr Arg
20 25 30

Tyr Gly Gly Val Gly Arg Gly Ala Lys
35 40

<210> 38

<211> 35

<212> PRT

<213> Homo sapiens

<400> 38

Cys Asn Leu Asn Gly Thr Leu Ala Pro Ala Thr Trp Gln Gly Ala Leu
1 5 10 15

Gly Cys His Tyr Arg Leu Gly Pro Gly Phe Arg Pro Asp Gly Asp Phe
20 25 30

Pro Ala Asp
35

<210> 39

<211> 20

<212> PRT

<213> Homo sapiens

<400> 39

Arg Leu Gln Gln Pro Ser Gly Cys Gly Pro Asp Ser Gly Glu Cys Asp
1 5 10 15

Ser Pro Ala Gln
20

<210> 40

<211> 41

<212> PRT

<213> Homo sapiens

<400> 40

Arg Ala Arg Leu Gln Pro Gly Ser Pro Pro Thr Thr Gln Pro Leu Thr
1 5 10 15

Pro Leu Thr Met Trp Thr Ser Phe Trp Thr Arg Ala Ser Ala Ala Ile
20 25 30

Arg Leu Trp Pro Gly Gln Arg Gly Val

35 40

<210> 41

<211> 229

<212> DNA

<213> Homo sapiens

<400> 41
gtgagcgtct acaaccgcct ggagctgagg aactcttcca acgtcctggg catcatccgt 60

ggggctgtgg agcctggtga gccctcctct tgctgcctgc accccaggcc cctgctctgc 120

tctggatgcc gctgtcctca tccagccctg cccttgccac cacccagccc agctcccccct 180

gcccacctct ccctctcctc tggttctctg ccccttttcc tctggccag 229

<210> 42

<211> 51

<212> PRT

<213> Homo sapiens

<400> 42

Gly Glu Pro Ser Ser Cys Cys Leu His Pro Arg Pro Leu Leu Cys Ser
1 5 10 15

Gly Cys Arg Cys Pro His Pro Ala Leu Pro Leu Pro Pro Pro Ser Pro
20 25 30

Ala Pro Pro Ala His Leu Ser Leu Ser Ser Gly Ser Leu Pro Leu Phe
35 40 45

Leu Trp Pro
50

<210> 43

<211> 82

<212> DNA

<213> Homo sapiens

<400> 43
gtgaggaggg agacaagggg catcctgaga ccaggacagg agaggctgaa gactgagccc 60

tggccttgtc accttgccgc ag 82

<210> 44

<211> 17

<212> PRT

<213> Homo sapiens

<400> 44

Glu Glu Gly Asp Lys Gly His Pro Glu Thr Arg Thr Gly Glu Ala Glu
1 5 10 15

Asp

<210> 45

<211> 74

<212> DNA

<213> Homo sapiens

<400> 45
gtatgcacag ccctgaccct gaggtatggg gagccctgca cccccatgac tgagccactg 60

cttgttcctc acag 74

<210> 46

<211> 17

<212> PRT

<213> Homo sapiens

<400> 46

Gly Met His Ser Pro Asp Pro Glu Val Trp Gly Ala Leu His Pro His
1 5 10 15

Asp

<210> 47

<211> 3110

<212> DNA

<213> Homo sapiens

<400> 47

ctcaagaagc catggcggaa tccaggggcc gtctgtacct ttggatgtgc ttggctgctg 60

cgctggcatc tttcctgatg ggatttatgg tgggctggtt tattaagcct ctcaaagaaa 120

caaccacttc tgtgcgctat catcaaagta tacggtggaa actggtatcc gaaatgaaag 180

ctgaaaacat caaatcattt cttcgttctt ttacaaagct tcctcatctg gcaggaacag 240

aacaaaattt cttgcttgcc aagaaaatcc aaacccagtg gaagaaattt ggactagatt 300

cagccaagtt ggttcattat gatgtcctct tatcttaccc caatgagaca aatgccaact 360

atatatcgat tgtggatgaa catgaaactg agattttcaa aacatcatac cttgaaccac 420

caccagatgg ctatgagaat gttacaaata ttgtgccacc atataatgct ttctcagccc 480

aaggcatgcc agagggagat cttgtatatg tgaactatgc tcgcactgaa gacttttca 540

aactagaaag agagatgggc atcaactgta ctgggaagat tgttattgca agatatggaa 600

aaatcttcag aggaaataaa gttaaaaatg ccatgttagc aggagccata ggaatcatct 660

tgtactcaga tccagctgac tactttgctc ctgaggtaca gccatatccc aaaggatgga 720

atcttcctgg aactgcagcc cagagaggaa atgtgttaaa tttgaatggt gctggtgacc 780

cactcactcc aggctatcca gcaaaagaat acactttcag acttgatgtt gaagaaggag 840

tgggaatccc ccgaatacct gtacatccca ttggatataa tgatgcagaa atattattac 900

gctacttggg aggaattgct ccaccagata agagttggaa gggagccctt aatgtgagtt 960

atagtatcgg acctggcttt acagggagtg attctttcag gaaggttaga atgcatgttt 1020

ataacatcaa taaaattaca aggatttaca atgtagttgg aactatcaga ggatctgtgg 1080

aacctgacag gtatgttatt ctgggaggtc accgggactc ctgggtattt ggagctattg 1140

acccaaccag tggggttgct gttttgcaag aaattgcccg gagttttgga aaactgatga 1200

gtaaaggctg gagacctaga agaactatca tttttgccag ctgggatgca gaagaatttg 1260

gacttctggg ttccacagaa tgggctgagg agaatgtcaa aatactccag gagagaagca 1320

ttgcttatat caactcggat tcatctatag aaggcaatta tactctcaga gttgactgta 1380

ctccccttct ttaccaatta gtgtataaac tgacaaaaga gatccccagc cctgatgatg 1440

ggtttgagag taaatcactg tatgaaagct ggttggaaaa agacccttca cctgaaaata 1500

aaaatttgcc tagaatcaat aagctgggat ctggaagtga ctttgaagct tattttcaga 1560

gacttggaat tgcttcaggc agagcccgtt acactaagaa taagaaaaca gataagtaca 1620

gcagctaccc agtgtaccac acaatttatg agacatttga attggtagag aaattttatg 1680

accccacatt taaaaaacaa ctttctgtgg ctcaattacg aggagcactg gtatatgagc 1740

ttgtggattc taaaatcatt ccttttaata ttcaagacta tgcagaagct ttgaaaaact 1800

atgcagcaag tatctataat ctatctaaga aacatgatca acaattaaca gaccatggag 1860

tatcatttga ctccttattt tctgctgtga aaaacttctc agaggctgct tcagattttc 1920

ataaacgact tatacaagtt gatcttaaca atcccattgc agtgagaatg atgaatgacc 1980

aactgatgct cctggaaaga gcattcatcg atcctcttgg tttaccagga aagctgttct 2040

ataggcacat catatttgct ccaagtagcc acaacaaata tgctggagaa tcatttcctg 2100

gaatctatga tgctatcttt gatattgaaa ataaagccaa ctctcgtttg gcctggaaag 2160

aagtaaagaa acatatttct attgcagctt ttacaattca agcagcagca ggaactctga 2220

aagaagtatt atagaaggtc tcaagtggct agccattaaa ggtgttgcta aaagtctgag 2280

gataaaattc acctttctga taacttatga agccagggtg ttctaaactc ttttcatgtc 2340

atgttttgat tataggcttt ggtcttttca tctgcaaagc ctttttttt tttgctcttt 2400

aaaagttaat aattatatta gcaaagtgtt aatctaatga agtaaaaaac tcctgtgtgg 2460

cagaaagtaa aagaaaattc cctaaattat agcaaggaac atgaattctc agacattgtg 2520

agtgtgggaa tgtaaaatgg taaaatcact tttgaaaaca gtttggcagt ttcctataaa 2580

gttaaacata cacttttact ttaggactcc agaattccac ttctagttat ttattcaaga 2640

gaaggaaaaa caatgatcac agcaatactt gtatgcatgt tcattgcaac ttaaaagcgt 2700

aaaaacccca aatgtccatc cacagacgaa tgtataaact gtggtatcca ttacacaata 2760

gactacttac tactcagcaa taaaaatgaa gtaactttca ataaatgcaa tattattggc 2820

agacattgtt gaaggaaaaa agccagacaa acaactacat aaaatatgtt tctatttaga 2880

tgaagtggca aactaatctg tagtgttaaa aattagatta gtgattgcct gggccaagtg 2940

gcaggttggg gaggatggct gcaaagaagt atgaggaaac tttctccaat agatgagaat 3000

tttccgtatc ttgatctgag tggcaaattg taaacttaaa atatatataa aatttattga 3060

aagaaaatta agcctcaata aacgtgatta taaaaaaaaa aaaaaaaagg 3110

<210> 48

<211> 740

<212> PRT

<213> Homo sapiens

<400> 48

```
Met Ala Glu Ser Arg Gly Arg Leu Tyr Leu Trp Met Cys Leu Ala Ala
1               5                  10                  15

Ala Leu Ala Ser Phe Leu Met Gly Phe Met Val Gly Trp Phe Ile Lys
            20                  25                  30

Pro Leu Lys Glu Thr Thr Thr Ser Val Arg Tyr His Gln Ser Ile Arg
        35                  40                  45

Trp Lys Leu Val Ser Glu Met Lys Ala Glu Asn Ile Lys Ser Phe Leu
    50                  55                  60

Arg Ser Phe Thr Lys Leu Pro His Leu Ala Gly Thr Glu Gln Asn Phe
65                  70                  75                  80

Leu Leu Ala Lys Lys Ile Gln Thr Gln Trp Lys Lys Phe Gly Leu Asp
                85                  90                  95

Ser Ala Lys Leu Val His Tyr Asp Val Leu Leu Ser Tyr Pro Asn Glu
            100                 105                 110

Thr Asn Ala Asn Tyr Ile Ser Ile Val Asp Glu His Glu Thr Glu Ile
        115                 120                 125

Phe Lys Thr Ser Tyr Leu Glu Pro Pro Pro Asp Gly Tyr Glu Asn Val
    130                 135                 140

Thr Asn Ile Val Pro Pro Tyr Asn Ala Phe Ser Ala Gln Gly Met Pro
145                 150                 155                 160

Glu Gly Asp Leu Val Tyr Val Asn Tyr Ala Arg Thr Glu Asp Phe Phe
                165                 170                 175

Lys Leu Glu Arg Glu Met Gly Ile Asn Cys Thr Gly Lys Ile Val Ile
            180                 185                 190

Ala Arg Tyr Gly Lys Ile Phe Arg Gly Asn Lys Val Lys Asn Ala Met
        195                 200                 205

Leu Ala Gly Ala Ile Gly Ile Ile Leu Tyr Ser Asp Pro Ala Asp Tyr
    210                 215                 220

Phe Ala Pro Glu Val Gln Pro Tyr Pro Lys Gly Trp Asn Leu Pro Gly
225                 230                 235                 240

Thr Ala Ala Gln Arg Gly Asn Val Leu Asn Leu Asn Gly Ala Gly Asp
                245                 250                 255

Pro Leu Thr Pro Gly Tyr Pro Ala Lys Glu Tyr Thr Phe Arg Leu Asp
            260                 265                 270

Val Glu Glu Gly Val Gly Ile Pro Arg Ile Pro Val His Pro Ile Gly
        275                 280                 285
```

Tyr Asn Asp Ala Glu Ile Leu Leu Arg Tyr Leu Gly Gly Ile Ala Pro
290 295 300

Pro Asp Lys Ser Trp Lys Gly Ala Leu Asn Val Ser Tyr Ser Ile Gly
305 310 315 320

Pro Gly Phe Thr Gly Ser Asp Ser Phe Arg Lys Val Arg Met His Val
325 330 335

Tyr Asn Ile Asn Lys Ile Thr Arg Ile Tyr Asn Val Val Gly Thr Ile
340 345 350

Arg Gly Ser Val Glu Pro Asp Arg Tyr Val Ile Leu Gly Gly His Arg
355 360 365

Asp Ser Trp Val Phe Gly Ala Ile Asp Pro Thr Ser Gly Val Ala Val
370 375 380

Leu Gln Glu Ile Ala Arg Ser Phe Gly Lys Leu Met Ser Lys Gly Trp
385 390 395 400

Arg Pro Arg Arg Thr Ile Ile Phe Ala Ser Trp Asp Ala Glu Glu Phe
405 410 415

Gly Leu Leu Gly Ser Thr Glu Trp Ala Glu Glu Asn Val Lys Ile Leu
420 425 430

Gln Glu Arg Ser Ile Ala Tyr Ile Asn Ser Asp Ser Ser Ile Glu Gly
435 440 445

Asn Tyr Thr Leu Arg Val Asp Cys Thr Pro Leu Leu Tyr Gln Leu Val
450 455 460

Tyr Lys Leu Thr Lys Glu Ile Pro Ser Pro Asp Asp Gly Phe Glu Ser
465 470 475 480

Lys Ser Leu Tyr Glu Ser Trp Leu Glu Lys Asp Pro Ser Pro Glu Asn
485 490 495

Lys Asn Leu Pro Arg Ile Asn Lys Leu Gly Ser Gly Ser Asp Phe Glu
500 505 510

Ala Tyr Phe Gln Arg Leu Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr
515 520 525

Lys Asn Lys Lys Thr Asp Lys Tyr Ser Ser Tyr Pro Val Tyr His Thr
530 535 540

Ile Tyr Glu Thr Phe Glu Leu Val Glu Lys Phe Tyr Asp Pro Thr Phe
545 550 555 560

Lys Lys Gln Leu Ser Val Ala Gln Leu Arg Gly Ala Leu Val Tyr Glu
565 570 575

Leu Val Asp Ser Lys Ile Ile Pro Phe Asn Ile Gln Asp Tyr Ala Glu
580 585 590

Ala Leu Lys Asn Tyr Ala Ala Ser Ile Tyr Asn Leu Ser Lys Lys His

595 600 605

Asp Gln Gln Leu Thr Asp His Gly Val Ser Phe Asp Ser Leu Phe Ser
610 615 620

Ala Val Lys Asn Phe Ser Glu Ala Ala Ser Asp Phe His Lys Arg Leu
625 630 635 640

Ile Gln Val Asp Leu Asn Asn Pro Ile Ala Val Arg Met Met Asn Asp
645 650 655

Gln Leu Met Leu Leu Glu Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro
660 665 670

Gly Lys Leu Phe Tyr Arg His Ile Ile Phe Ala Pro Ser Ser His Asn
675 680 685

Lys Tyr Ala Gly Glu Ser Phe Pro Gly Ile Tyr Asp Ala Ile Phe Asp
690 695 700

Ile Glu Asn Lys Ala Asn Ser Arg Leu Ala Trp Lys Glu Val Lys Lys
705 710 715 720

His Ile Ser Ile Ala Ala Phe Thr Ile Gln Ala Ala Ala Gly Thr Leu
725 730 735

Lys Glu Val Leu
740

<210> 49

<211> 1860

<212> DNA

<213> Homo sapiens

<400> 49

cggcgcggag ggccccagcc cagtcagggg tgtggccgcc gccaccgtaa ggctaggccg 60

cgagcttagt cctgggagcc gccctatcag attatcttaa caagaaaacc aactggaaaa 120

aaaaatgaaa ttccttatct tcgcattttt cggtggtgtt caccttttat ccctgtgctc 180

tgggaaagct atatgcaaga atggcatctc taagaggact tttgaagaaa taaaagaaga 240

aatagccagc tgtggagatg ttgctaaagc aatcatcaac ctagctgttt atggtaaagc 300

ccagaacaga tcctatgagc gattggcact tctggttgat actgttggac ccagactgag 360

tggctccaag aacctagaaa aagccatcca aattatgtac caaaacctgc agcaagatgg 420

gctggagaaa gttcacctgg agccagtgag aataccccac tgggagaggg gagaagaatc 480

agctgtgatg ctggagccaa gaattcataa gatagccatc ctgggtcttg gcagcagcat 540

tgggactcct ccagaaggca ttacagcaga agttctggtg gtgacctctt tcgatgaact 600

gcagagaagg gcctcagaag caagagggaa gattgttgtt tataaccaac cttacatcaa 660

ctactcaagg acggtgcaat accgaacgca gggggcggtg gaagctgcca aggttggggc 720

tttggcatct ctcattcgat ccgtggcctc cttctccatc tacagtcctc acacaggtat 780

tcaggaatac caggatggcg tgcccaagat tccaacagcc tgtattacgg tggaagatgc 840

agaaatgatg tcaagaatgg cttctcatgg gatcaaaatt gtcattcagc taaagatggg 900

ggcaaagacc tacccagata ctgattcctt caacactgta gcagagatca ctgggagcaa 960

atatccagaa caggttgtac tggtcagtgg acatctggac agctgggatg ttgggcaggg 1020

tgccatggat gatggcggtg gagcctttat atcatgggaa gcactctcac ttattaaaga 1080

tcttgggctg cgtccaaaga ggactctgcg gctggtgctc tggactgcag aagaacaagg 1140

tggagttggt gccttccagt attatcagtt acacaaggta aatatttcca actacagtct 1200

ggtgatggag tctgacgcag gaaccttctt acccactggg ctgcaattca ctggcagtga 1260

aaaggccagg gccatcatgg aggaggttat gagcctgctg cagcccctca atatcactca 1320

ggtcctgagc catggagaag ggacagacat caacttttgg atccaagctg gagtgcctgg 1380

agccagtcta cttgatgact tatacaagta tttcttcttc catcactccc acggagacac 1440

catgactgtc atggatccaa agcagatgaa tgttgctgct gctgtttggg ctgttgtttc 1500

ttatgttgtt gcagacatgg aagaaatgct gcctaggtcc tagaaacagt aagaaagaaa 1560

cgttttcatg cttctggcca ggaatcctgg gtctgcaact ttggaaaact cctcttcaca 1620

taacaatttc atccaattca tcttcaaagc acaactctat ttcatgcttt ctgttattat 1680

ctttcttgat actttccaaa ttctctgatt ctagaaaaag gaatcattct cccctccctc 1740

ccaccacata gaatcaacat atggtaggga ttacagtggg ggcatttctt tatatcacct 1800

cttaaaaaca ttgtttccac tttaaaagta aacacttaat aaatttttgg aagatctctg 1860

<210> 50

<211> 472

<212> PRT

<213> Homo sapiens

<400> 50

Met Lys Phe Leu Ile Phe Ala Phe Phe Gly Gly Val His Leu Leu Ser
1 5 10 15

```
Leu Cys Ser Gly Lys Ala Ile Cys Lys Asn Gly Ile Ser Lys Arg Thr
            20                  25                  30

Phe Glu Glu Ile Lys Glu Glu Ile Ala Ser Cys Gly Asp Val Ala Lys
        35                  40                  45

Ala Ile Ile Asn Leu Ala Val Tyr Gly Lys Ala Gln Asn Arg Ser Tyr
    50                  55                  60

Glu Arg Leu Ala Leu Leu Val Asp Thr Val Gly Pro Arg Leu Ser Gly
65                  70                  75                  80

Ser Lys Asn Leu Glu Lys Ala Ile Gln Ile Met Tyr Gln Asn Leu Gln
                85                  90                  95

Gln Asp Gly Leu Glu Lys Val His Leu Glu Pro Val Arg Ile Pro His
            100                 105                 110

Trp Glu Arg Gly Glu Glu Ser Ala Val Met Leu Glu Pro Arg Ile His
        115                 120                 125

Lys Ile Ala Ile Leu Gly Leu Gly Ser Ser Ile Gly Thr Pro Pro Glu
    130                 135                 140

Gly Ile Thr Ala Glu Val Leu Val Val Thr Ser Phe Asp Glu Leu Gln
145                 150                 155                 160

Arg Arg Ala Ser Glu Ala Arg Gly Lys Ile Val Val Tyr Asn Gln Pro
                165                 170                 175

Tyr Ile Asn Tyr Ser Arg Thr Val Gln Tyr Arg Thr Gln Gly Ala Val
            180                 185                 190

Glu Ala Ala Lys Val Gly Ala Leu Ala Ser Leu Ile Arg Ser Val Ala
        195                 200                 205

Ser Phe Ser Ile Tyr Ser Pro His Thr Gly Ile Gln Glu Tyr Gln Asp
    210                 215                 220

Gly Val Pro Lys Ile Pro Thr Ala Cys Ile Thr Val Glu Asp Ala Glu
225                 230                 235                 240

Met Met Ser Arg Met Ala Ser His Gly Ile Lys Ile Val Ile Gln Leu
                245                 250                 255

Lys Met Gly Ala Lys Thr Tyr Pro Asp Thr Asp Ser Phe Asn Thr Val
            260                 265                 270

Ala Glu Ile Thr Gly Ser Lys Tyr Pro Glu Gln Val Val Leu Val Ser
        275                 280                 285

Gly His Leu Asp Ser Trp Asp Val Gly Gln Gly Ala Met Asp Asp Gly
    290                 295                 300

Gly Gly Ala Phe Ile Ser Trp Glu Ala Leu Ser Leu Ile Lys Asp Leu
305                 310                 315                 320

Gly Leu Arg Pro Lys Arg Thr Leu Arg Leu Val Leu Trp Thr Ala Glu
                325                 330                 335
```

```
Glu Gln Gly Gly Val Gly Ala Phe Gln Tyr Tyr Gln Leu His Lys Val
            340                 345                 350

Asn Ile Ser Asn Tyr Ser Leu Val Met Glu Ser Asp Ala Gly Thr Phe
        355                 360                 365

Leu Pro Thr Gly Leu Gln Phe Thr Gly Ser Glu Lys Ala Arg Ala Ile
    370                 375                 380

Met Glu Glu Val Met Ser Leu Leu Gln Pro Leu Asn Ile Thr Gln Val
385                 390                 395                 400

Leu Ser His Gly Glu Gly Thr Asp Ile Asn Phe Trp Ile Gln Ala Gly
                405                 410                 415

Val Pro Gly Ala Ser Leu Leu Asp Asp Leu Tyr Lys Tyr Phe Phe Phe
            420                 425                 430

His His Ser His Gly Asp Thr Met Thr Val Met Asp Pro Lys Gln Met
        435                 440                 445

Asn Val Ala Ala Ala Val Trp Ala Val Val Ser Tyr Val Val Ala Asp
    450                 455                 460

Met Glu Glu Met Leu Pro Arg Ser
465                 470
```

<210> 51

<211> 750

<212> PRT

<213> Homo sapiens

<400> 51

```
Met Trp Asn Leu Leu His Glu Thr Asp Ser Ala Val Ala Thr Ala Arg
1               5                   10                  15

Arg Pro Arg Trp Leu Cys Ala Gly Ala Leu Val Leu Ala Gly Gly Phe
            20                  25                  30

Phe Leu Leu Gly Phe Leu Phe Gly Trp Phe Ile Lys Ser Ser Asn Glu
        35                  40                  45

Ala Thr Asn Ile Thr Pro Lys His Asn Met Lys Ala Phe Leu Asp Glu
    50                  55                  60

Leu Lys Ala Glu Asn Ile Lys Lys Phe Leu His Asn Phe Thr Gln Ile
65                  70                  75                  80

Pro His Leu Ala Gly Thr Glu Gln Asn Phe Gln Leu Ala Lys Gln Ile
                85                  90                  95

Gln Ser Gln Trp Lys Glu Phe Gly Leu Asp Ser Val Glu Leu Ala His
```

```
                100                 105                 110

Tyr Asp Val Leu Leu Ser Tyr Pro Asn Lys Thr His Pro Asn Tyr Ile
        115                 120                 125

Ser Ile Ile Asn Glu Asp Gly Asn Glu Ile Phe Asn Thr Ser Leu Phe
    130                 135                 140

Glu Pro Pro Pro Pro Gly Tyr Glu Asn Val Ser Asp Ile Val Pro Pro
145                 150                 155                 160

Phe Ser Ala Phe Ser Pro Gln Gly Met Pro Glu Gly Asp Leu Val Tyr
                165                 170                 175

Val Asn Tyr Ala Arg Thr Glu Asp Phe Phe Lys Leu Glu Arg Asp Met
            180                 185                 190

Lys Ile Asn Cys Ser Gly Lys Ile Val Ile Ala Arg Tyr Gly Lys Val
        195                 200                 205

Phe Arg Gly Asn Lys Val Lys Asn Ala Gln Leu Ala Gly Ala Lys Gly
    210                 215                 220

Val Ile Leu Tyr Ser Asp Pro Ala Asp Tyr Phe Ala Pro Gly Val Lys
225                 230                 235                 240

Ser Tyr Pro Asp Gly Trp Asn Leu Pro Gly Gly Gly Val Gln Arg Gly
                245                 250                 255

Asn Ile Leu Asn Leu Asn Gly Ala Gly Asp Pro Leu Thr Pro Gly Tyr
            260                 265                 270

Pro Ala Asn Glu Tyr Ala Tyr Arg Arg Gly Ile Ala Glu Ala Val Gly
        275                 280                 285

Leu Pro Ser Ile Pro Val His Pro Ile Gly Tyr Tyr Asp Ala Gln Lys
    290                 295                 300

Leu Leu Glu Lys Met Gly Gly Ser Ala Pro Pro Asp Ser Ser Trp Arg
305                 310                 315                 320

Gly Ser Leu Lys Val Pro Tyr Asn Val Gly Pro Gly Phe Thr Gly Asn
                325                 330                 335

Phe Ser Thr Gln Lys Val Lys Met His Ile His Ser Thr Asn Glu Val
            340                 345                 350

Thr Arg Ile Tyr Asn Val Ile Gly Thr Leu Arg Gly Ala Val Glu Pro
        355                 360                 365

Asp Arg Tyr Val Ile Leu Gly Gly His Arg Asp Ser Trp Val Phe Gly
    370                 375                 380

Gly Ile Asp Pro Gln Ser Gly Ala Ala Val Val His Glu Ile Val Arg
385                 390                 395                 400

Ser Phe Gly Thr Leu Lys Lys Glu Gly Trp Arg Pro Arg Arg Thr Ile
                405                 410                 415
```

```
Leu Phe Ala Ser Trp Asp Ala Glu Glu Phe Gly Leu Leu Gly Ser Thr
            420                 425                 430

Glu Trp Ala Glu Glu Asn Ser Arg Leu Leu Gln Glu Arg Gly Val Ala
        435                 440                 445

Tyr Ile Asn Ala Asp Ser Ser Ile Glu Gly Asn Tyr Thr Leu Arg Val
    450                 455                 460

Asp Cys Thr Pro Leu Met Tyr Ser Leu Val His Asn Leu Thr Lys Glu
465                 470                 475                 480

Leu Lys Ser Pro Asp Glu Gly Phe Glu Gly Lys Ser Leu Tyr Glu Ser
                485                 490                 495

Trp Thr Lys Lys Ser Pro Ser Pro Glu Phe Ser Gly Met Pro Arg Ile
            500                 505                 510

Ser Lys Leu Gly Ser Gly Asn Asp Phe Glu Val Phe Phe Gln Arg Leu
        515                 520                 525

Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr Lys Asn Trp Glu Thr Asn
    530                 535                 540

Lys Phe Ser Gly Tyr Pro Leu Tyr His Ser Val Tyr Glu Thr Tyr Glu
545                 550                 555                 560

Leu Val Glu Lys Phe Tyr Asp Pro Met Phe Lys Tyr His Leu Thr Val
                565                 570                 575

Ala Gln Val Arg Gly Gly Met Val Phe Glu Leu Ala Asn Ser Ile Val
            580                 585                 590

Leu Pro Phe Asp Cys Arg Asp Tyr Ala Val Val Leu Arg Lys Tyr Ala
        595                 600                 605

Asp Lys Ile Tyr Ser Ile Ser Met Lys His Pro Gln Glu Met Lys Thr
    610                 615                 620

Tyr Ser Val Ser Phe Asp Ser Leu Phe Ser Ala Val Lys Asn Phe Thr
625                 630                 635                 640

Glu Ile Ala Ser Lys Phe Ser Glu Arg Leu Gln Asp Phe Asp Lys Ser
                645                 650                 655

Asn Pro Ile Val Leu Arg Met Met Asn Asp Gln Leu Met Phe Leu Glu
            660                 665                 670

Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro Asp Arg Pro Phe Tyr Arg
        675                 680                 685

His Val Ile Tyr Ala Pro Ser Ser His Asn Lys Tyr Ala Gly Glu Ser
    690                 695                 700

Phe Pro Gly Ile Tyr Asp Ala Leu Phe Asp Ile Glu Ser Lys Val Asp
705                 710                 715                 720

Pro Ser Lys Ala Trp Gly Glu Val Lys Arg Gln Ile Tyr Val Ala Ala
                725                 730                 735
```

Phe Thr Val Gln Ala Ala Ala Glu Thr Leu Ser Glu Val Ala
740 745 750

<210> 52

<211> 265

<212> PRT

<213> Saccharomyces cerevisiae

<400> 52

Thr Lys His Thr Val Ala Thr Val Gly Val Pro Tyr Lys Val Gly Lys
1 5 10 15

Lys Leu Ile Ala Asn Ile Ala Leu Asn Ile Asp Tyr Ser Leu Tyr Phe
20 25 30

Ala Met Asp Ser Tyr Val Glu Phe Ile Lys Thr Gln Asn Ile Ile Ala
35 40 45

Asp Thr Lys His Gly Asp Pro Asp Asn Ile Val Ala Leu Gly Ala His
50 55 60

Ser Asp Ser Val Glu Glu Gly Pro Gly Ile Asn Asp Asp Gly Ser Gly
65 70 75 80

Thr Ile Ser Leu Leu Asn Val Ala Lys Gln Leu Thr His Phe Lys Ile
85 90 95

Asn Asn Lys Val Arg Phe Ala Trp Trp Ala Ala Glu Glu Glu Gly Leu
100 105 110

Leu Gly Ser Asn Phe Tyr Ala Tyr Asn Leu Thr Lys Glu Glu Asn Ser
115 120 125

Lys Ile Arg Val Phe Met Asp Tyr Asp Met Met Ala Ser Pro Asn Tyr
130 135 140

Glu Tyr Glu Ile Tyr Asp Ala Asn Asn Lys Glu Asn Pro Lys Gly Ser
145 150 155 160

Glu Glu Leu Lys Asn Leu Tyr Val Asp Tyr Tyr Lys Ala His His Leu
165 170 175

Asn Tyr Thr Leu Val Pro Phe Asp Gly Arg Ser Asp Tyr Val Gly Phe
180 185 190

Ile Asn Asn Gly Ile Pro Ala Gly Gly Ile Ala Thr Gly Ala Glu Lys
195 200 205

Asn Asn Val Asn Asn Gly Lys Val Leu Asp Arg Cys Tyr His Gln Leu
210 215 220

Cys Asp Asp Val Ser Asn Leu Ser Trp Asp Ala Phe Ile Thr Asn Thr

225 230 235 240

Lys Leu Ile Ala His Ser Val Ala Thr Tyr Ala Asp Ser Phe Glu Gly
245 250 255

Phe Pro Lys Arg Glu Thr Gln Lys His
260 265

<210> 53

<211> 268

<212> PRT

<213> Vibrio cholerae

<400> 53

Gln Ile Thr Asn Thr Ile Arg Ala Leu Ser Ser Phe Asn Asn Arg Phe
1 5 10 15

Tyr Thr Thr Ala Ser Gly Ala Gln Ala Ser Asp Trp Leu Ala Asn Glu
20 25 30

Trp Arg Ser Leu Ile Ser Ser Leu Pro Gly Ser Arg Ile Glu Gln Ile
35 40 45

Lys His Ser Gly Tyr Asn Gln Lys Ser Val Val Leu Thr Ile Gln Gly
50 55 60

Ser Glu Lys Pro Asp Glu Trp Val Ile Val Gly Gly His Leu Asp Ser
65 70 75 80

Thr Leu Gly Ser His Thr Asn Glu Gln Ser Ile Ala Pro Gly Ala Asp
85 90 95

Asp Asp Ala Ser Gly Ile Ala Ser Leu Ser Glu Ile Ile Arg Val Leu
100 105 110

Arg Asp Asn Asn Phe Arg Pro Lys Arg Ser Ala Ala Leu Met Ala Tyr
115 120 125

Ala Ala Glu Glu Val Gly Leu Arg Gly Ser Gln Asp Pro Ala Asn Gln
130 135 140

Tyr Lys Ala Gln Gly Lys Lys Val Val Ser Val Leu Gln Leu Asp Met
145 150 155 160

Thr Asn Tyr Arg Gly Ser Ala Glu Asp Ile Val Phe Ile Thr Asp Tyr
165 170 175

Thr Asp Ser Asn Leu Thr Gln Phe Leu Thr Thr Leu Ile Asp Glu Tyr
180 185 190

Leu Pro Glu Leu Thr Tyr Gly Tyr Asp Arg Cys Gly Tyr Ala Cys Ser
195 200 205

Asp His Ala Ser Trp His Lys Ala Gly Phe Ser Ala Ala Met Pro Phe
210 215 220

Glu Ser Lys Phe Lys Asp Tyr Asn Pro Lys Ile His Thr Ser Gln Asp
225 230 235 240

Thr Leu Ala Asn Ser Asp Pro Thr Gly Asn His Ala Val Thr Phe Thr
245 250 255

Lys Leu Gly Leu Ala Tyr Val Ile Glu Met Ala Asn
260 265

<210> 54

<211> 268

<212> PRT

<213> Aeromonas proteolytica

<400> 54

Gln Ile Thr Gly Thr Ile Ser Ser Leu Glu Ser Phe Thr Asn Arg Phe
1 5 10 15

Tyr Thr Thr Thr Ser Gly Ala Gln Ala Ser Asp Trp Ile Ala Ser Glu
20 25 30

Trp Gln Ala Leu Ser Ala Ser Leu Pro Asn Ala Ser Val Lys Gln Val
35 40 45

Ser His Ser Gly Tyr Asn Gln Lys Ser Val Val Met Thr Ile Thr Gly
50 55 60

Ser Glu Ala Pro Asp Glu Trp Ile Val Ile Gly Gly His Leu Asp Ser
65 70 75 80

Thr Ile Gly Ser His Thr Asn Glu Gln Ser Val Ala Pro Gly Ala Asp
85 90 95

Asp Asp Ala Ser Gly Ile Ala Ala Val Thr Glu Val Ile Arg Val Leu
100 105 110

Ser Glu Asn Asn Phe Gln Pro Lys Arg Ser Ile Ala Phe Met Ala Tyr
115 120 125

Ala Ala Glu Glu Val Gly Leu Arg Gly Ser Gln Asp Leu Ala Asn Gln
130 135 140

Tyr Lys Ser Glu Gly Lys Asn Val Val Ser Ala Leu Gln Leu Asp Met
145 150 155 160

Thr Asn Tyr Lys Gly Ser Ala Gln Asp Val Val Phe Ile Thr Asp Tyr
165 170 175

Thr Asp Ser Asn Phe Thr Gln Tyr Leu Thr Gln Leu Met Asp Glu Tyr
180 185 190

Leu Pro Ser Leu Thr Tyr Gly Phe Asp Thr Cys Gly Tyr Ala Cys Ser
195 200 205

Asp His Ala Ser Trp His Asn Ala Gly Tyr Pro Ala Ala Met Pro Phe
210 215 220

Glu Ser Lys Phe Asn Asp Tyr Asn Pro Arg Ile His Thr Thr Gln Asp
225 230 235 240

Thr Leu Ala Asn Ser Asp Pro Thr Gly Ser His Ala Lys Lys Phe Thr
245 250 255

Gln Leu Gly Leu Ala Tyr Ala Ile Glu Met Gly Ser
260 265

<210> 55

<211> 263

<212> PRT

<213> Streptomyces griseus

<400> 55

Asn Asn Gly Gly Asn Arg Ala His Gly Arg Pro Gly Tyr Lys Ala Ser
1 5 10 15

Val Asp Tyr Val Lys Ala Lys Leu Asp Ala Ala Gly Tyr Thr Thr Thr
20 25 30

Leu Gln Gln Phe Thr Ser Gly Gly Ala Thr Gly Tyr Asn Leu Ile Ala
35 40 45

Asn Trp Pro Gly Gly Asp Pro Asn Lys Val Leu Met Ala Gly Ala His
50 55 60

Leu Asp Ser Val Ser Ser Gly Ala Gly Ile Asn Asp Asn Gly Ser Gly
65 70 75 80

Ser Ala Ala Val Leu Glu Thr Ala Leu Ala Val Ser Arg Ala Gly Tyr
85 90 95

Gln Pro Asp Lys His Leu Arg Phe Ala Trp Trp Gly Ala Glu Glu Leu
100 105 110

Gly Leu Ile Gly Ser Lys Phe Tyr Val Asn Asn Leu Pro Ser Ala Asp
115 120 125

Arg Ser Lys Leu Ala Gly Tyr Leu Asn Phe Asp Met Ile Gly Ser Pro
130 135 140

Asn Pro Gly Tyr Phe Val Tyr Asp Asp Asp Pro Val Ile Glu Lys Thr
145 150 155 160

Phe Lys Asn Tyr Phe Ala Gly Leu Asn Val Pro Thr Glu Ile Glu Thr

165 170 175

Glu Gly Asp Gly Arg Ser Asp His Ala Pro Phe Lys Asn Val Gly Val
180 185 190

Pro Val Gly Gly Leu Phe Thr Gly Ala Gly Tyr Thr Lys Ser Ala Ala
195 200 205

Gln Ala Gln Lys Trp Gly Gly Thr Ala Gly Gln Ala Phe Asp Arg Cys
210 215 220

Tyr His Ser Ser Cys Asp Ser Leu Ser Asn Ile Asn Asp Thr Ala Leu
225 230 235 240

Asp Arg Asn Ser Asp Ala Ala Ala His Ala Ile Trp Thr Leu Ser Ser
245 250 255

Gly Thr Gly Glu Pro Pro Thr
260

<210> 56

<211> 282

<212> PRT

<213> Homo sapiens

<400> 56

Asp Ala Gln Lys Leu Leu Glu Lys Met Gly Gly Ser Ala Pro Pro Asp
1 5 10 15

Ser Ser Trp Arg Gly Ser Leu Lys Val Pro Tyr Asn Val Gly Pro Gly
20 25 30

Phe Thr Gly Asn Phe Ser Thr Gln Lys Val Lys Met His Ile His Ser
35 40 45

Thr Asn Glu Val Thr Arg Ile Tyr Asn Val Ile Gly Thr Leu Arg Gly
50 55 60

Ala Val Glu Pro Asp Arg Tyr Val Ile Leu Gly Gly His Arg Asp Ser
65 70 75 80

Trp Val Phe Gly Gly Ile Asp Pro Gln Ser Gly Ala Ala Val Val His
85 90 95

Glu Ile Val Arg Ser Phe Gly Thr Leu Lys Lys Glu Gly Trp Arg Pro
100 105 110

Arg Arg Thr Ile Leu Phe Ala Ser Trp Asp Ala Glu Glu Phe Gly Leu
115 120 125

Leu Gly Ser Thr Glu Trp Ala Glu Glu Asn Ser Arg Leu Leu Gln Glu
130 135 140

```
Arg Gly Val Ala Tyr Ile Asn Ala Asp Ser Ser Ile Glu Gly Asn Tyr
145                 150                 155                 160

Thr Leu Arg Val Asp Cys Thr Pro Leu Met Tyr Ser Leu Val His Asn
                165                 170                 175

Leu Thr Lys Glu Leu Lys Ser Pro Asp Glu Gly Phe Glu Gly Lys Ser
            180                 185                 190

Leu Tyr Glu Ser Trp Thr Lys Lys Ser Pro Ser Pro Glu Phe Ser Gly
        195                 200                 205

Met Pro Arg Ile Ser Lys Leu Gly Ser Gly Asn Asp Phe Glu Val Phe
    210                 215                 220

Phe Gln Arg Leu Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr Lys Asn
225                 230                 235                 240

Trp Glu Thr Asn Lys Phe Ser Gly Tyr Pro Leu Tyr His Ser Val Tyr
                245                 250                 255

Glu Thr Tyr Glu Leu Val Glu Lys Phe Tyr Asp Pro Met Phe Lys Tyr
            260                 265                 270

His Leu Thr Val Ala Gln Val Arg Gly Gly
        275                 280
```

<210> 57

<211> 282

<212> PRT

<213> Homo sapiens

<400> 57

```
Asp Ala Glu Ile Leu Leu Arg Tyr Leu Gly Gly Ile Ala Pro Pro Asp
1               5                   10                  15

Lys Ser Trp Lys Gly Ala Leu Asn Val Ser Tyr Ser Ile Gly Pro Gly
            20                  25                  30

Phe Thr Gly Ser Asp Ser Phe Arg Lys Val Arg Met His Val Tyr Asn
        35                  40                  45

Ile Asn Lys Ile Thr Arg Ile Tyr Asn Val Val Gly Thr Ile Arg Gly
    50                  55                  60

Ser Val Glu Pro Asp Arg Tyr Val Ile Leu Gly Gly His Arg Asp Ser
65                  70                  75                  80

Trp Val Phe Gly Ala Ile Asp Pro Thr Ser Gly Val Ala Val Leu Gln
                85                  90                  95

Glu Ile Ala Arg Ser Phe Gly Lys Leu Met Ser Lys Gly Trp Arg Pro
            100                 105                 110
```

Arg Arg Thr Ile Ile Phe Ala Ser Trp Asp Ala Glu Glu Phe Gly Leu
115 120 125

Leu Gly Ser Thr Glu Trp Ala Glu Glu Asn Val Lys Ile Leu Gln Glu
130 135 140

Arg Ser Ile Ala Tyr Ile Asn Ser Asp Ser Ser Ile Glu Gly Asn Tyr
145 150 155 160

Thr Leu Arg Val Asp Cys Thr Pro Leu Leu Tyr Gln Leu Val Tyr Lys
165 170 175

Leu Thr Lys Glu Ile Pro Ser Pro Asp Asp Gly Phe Glu Ser Lys Ser
180 185 190

Leu Tyr Glu Ser Trp Leu Glu Lys Asp Pro Ser Pro Glu Asn Lys Asn
195 200 205

Leu Pro Arg Ile Asn Lys Leu Gly Ser Gly Ser Asp Phe Glu Ala Tyr
210 215 220

Phe Gln Arg Leu Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr Lys Asn
225 230 235 240

Lys Lys Thr Asp Lys Tyr Ser Ser Tyr Pro Val Tyr His Thr Ile Tyr
245 250 255

Glu Thr Phe Glu Leu Val Glu Lys Phe Tyr Asp Pro Thr Phe Lys Lys
260 265 270

Gln Leu Ser Val Ala Gln Leu Arg Gly Ala
275 280

<210> 58

<211> 283

<212> PRT

<213> Homo sapiens

<400> 58

Arg Asp Leu Leu Cys Asn Leu Asn Gly Thr Leu Ala Pro Ala Thr Trp
1 5 10 15

Gln Gly Ala Leu Gly Cys His Tyr Arg Leu Gly Pro Gly Phe Arg Pro
20 25 30

Asp Gly Asp Phe Pro Ala Asp Ser Gln Val Asn Val Ser Val Tyr Asn
35 40 45

Arg Leu Glu Leu Arg Asn Ser Ser Asn Val Leu Gly Ile Ile Arg Gly
50 55 60

Ala Val Glu Pro Asp Arg Tyr Val Leu Tyr Gly Asn His Arg Asp Ser

65 70 75 80

Trp Val His Gly Ala Val Asp Pro Ser Ser Gly Thr Ala Val Leu Leu
85 90 95

Glu Leu Ser Arg Val Leu Gly Thr Leu Leu Lys Lys Gly Thr Trp Arg
100 105 110

Pro Arg Arg Ser Ile Val Phe Ala Ser Trp Gly Ala Glu Glu Phe Gly
115 120 125

Leu Ile Gly Ser Thr Glu Phe Thr Glu Glu Phe Phe Asn Lys Leu Gln
130 135 140

Glu Arg Thr Val Ala Tyr Ile Asn Val Asp Ile Ser Val Phe Ala Asn
145 150 155 160

Ala Thr Leu Arg Val Gln Gly Thr Pro Pro Val Gln Ser Val Val Phe
165 170 175

Ser Ala Thr Lys Glu Ile Arg Ser Pro Gly Pro Gly Asp Leu Ser Ile
180 185 190

Tyr Asp Asn Trp Ile Arg Tyr Phe Asn Arg Ser Ser Pro Val Tyr Gly
195 200 205

Leu Val Pro Ser Leu Gly Ser Leu Gly Ala Gly Ser Asp Tyr Ala Pro
210 215 220

Phe Val His Phe Leu Gly Ile Ser Ser Met Asp Ile Ala Tyr Thr Tyr
225 230 235 240

Asp Arg Ser Lys Thr Ser Ala Arg Ile Tyr Pro Thr Tyr His Thr Ala
245 250 255

Phe Asp Thr Phe Asp Tyr Val Asp Lys Phe Leu Asp Pro Gly Phe Ser
260 265 270

Ser His Gln Ala Val Ala Arg Thr Ala Gly Ser
275 280

<210> 59

<211> 259

<212> PRT

<213> Homo sapiens

<400> 59

Ser Pro His Thr Gly Ile Gln Glu Tyr Gln Asp Gly Val Pro Lys Ile
1 5 10 15

Pro Thr Ala Cys Ile Thr Val Glu Asp Ala Glu Met Met Ser Arg Met
20 25 30

```
Ala Ser His Gly Ile Lys Ile Val Ile Gln Leu Lys Met Gly Ala Lys
        35                  40                  45

Thr Tyr Pro Asp Thr Asp Ser Phe Asn Thr Val Ala Glu Ile Thr Gly
    50                  55                  60

Ser Lys Tyr Pro Glu Gln Val Val Leu Val Ser Gly His Leu Asp Ser
65                  70                  75                  80

Trp Asp Val Gly Gln Gly Ala Met Asp Asp Gly Gly Gly Ala Phe Ile
                85                  90                  95

Ser Trp Glu Ala Leu Ser Leu Ile Lys Asp Leu Gly Leu Arg Pro Lys
            100                 105                 110

Arg Thr Leu Arg Leu Val Leu Trp Thr Ala Glu Glu Gln Gly Gly Val
        115                 120                 125

Gly Ala Phe Gln Tyr Tyr Gln Leu His Lys Val Asn Ile Ser Asn Tyr
    130                 135                 140

Ser Leu Val Met Glu Ser Asp Ala Gly Thr Phe Leu Pro Thr Gly Leu
145                 150                 155                 160

Gln Phe Thr Gly Ser Glu Lys Ala Arg Ala Ile Met Glu Glu Val Met
                165                 170                 175

Ser Leu Leu Gln Pro Leu Asn Ile Thr Gln Val Leu Ser His Gly Glu
            180                 185                 190

Gly Thr Asp Ile Asn Phe Trp Ile Gln Ala Gly Val Pro Gly Ala Ser
        195                 200                 205

Leu Leu Asp Asp Leu Tyr Lys Tyr Phe Phe Phe His His Ser His Gly
    210                 215                 220

Asp Thr Met Thr Val Met Asp Pro Lys Gln Met Asn Val Ala Ala Ala
225                 230                 235                 240

Val Trp Ala Val Val Ser Tyr Val Val Ala Asp Met Glu Glu Met Leu
                245                 250                 255

Pro Arg Ser
```